

## 41034 Manage irrigation scheduling and evaluate seasonal performance

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|---------------------------|---|
| <b>Kaupae   Level</b>     | 4   |
| <b>Whiwhinga   Credit</b> | 5   |
| <b>Whāinga   Purpose</b>  | <p>The skill standard is for people working or seeking skills in irrigation scheduling and monitoring.</p> <p>People credited with this skill standard will be able to plan and manage seasonal irrigation scheduling and evaluate seasonal performance to optimise water use efficiency and compliance.</p> <p>This skill standard has been developed to align with the New Zealand Certificate in Irrigation System Management (Level 4) [Ref: 2556].</p> |

### Hua o te ako me Paearu aromatawai | Learning outcomes and assessment criteria

| <b>Hua o te ako   Learning outcomes</b>                            | <b>Paearu aromatawai   Assessment criteria</b>  |
|--|---|
| 1. Manage irrigation scheduling and evaluate seasonal performance. | a. Calculate and schedule irrigation events timing and water depth using soil, crop, and climate data.    |
|  | b. Create and document a seasonal irrigation schedule that meets operational and regulatory requirements. |
|  | c. Monitor and adjust the schedule based on environmental conditions and crop demand.                     |
|  | d. Analyse in-season costs and benefits (water, energy, labour) to optimise efficiency.                   |
|  | e. Evaluate crop response and yield projections to determine irrigation effectiveness.                    |
|  | f. Recommend improvements for future scheduling based on in-season performance and sustainability.        |

### Pārongo aromatawai me te taumata paearu | Assessment information and grade criteria

#### *Assessment specifications:*

Akōnga/learners must be assessed using naturally occurring evidence.

Activities can be assessed against existing, new or modified irrigation systems.

The irrigation system is for an agricultural or horticultural property, sports turf surface, landscape, golf course, amenities and wastewater.

All activities and evidence must meet the requirements of accepted industry practice, worksite safety procedures, and any subsequent amendments to legislation.

Evidence for all outcomes must be presented in accordance with: New Zealand Piped Irrigation Systems Design Code of Practice; and Irrigation; available from the Irrigation New Zealand website, <http://irrigationnz.co.nz/> and any subsequent amendments.

Providers must give due consideration to embedding ngā kaupapa (principles) o Te Tiriti o Waitangi when designing delivery activities relevant to this standard. These principles are outlined in [Guidelines for Providers: Embedding Tirohanga Māori](#).

Providers must give due consideration to the needs and values of Pacific peoples and other cultural groups when designing delivery activities relevant to this standard, ensuring practices are inclusive and equitable.

Definitions:

*Accepted industry practice* refers to approved codes of practice and standardised procedures accepted by the irrigation industry as examples of best practice.

*Worksite procedures* refer to documented procedures used by the organisation carrying out the work and applicable to the tasks being carried out. They may include but are not limited to standard operating procedures, site safety procedures, equipment operating procedures, quality assurance procedures, housekeeping standards, procedures to comply with legislative and local body requirements.

### **Ngā momo whiwhinga | Grades available**

Achieved.

### **Ihirangi waitohu | Indicative content**

#### **Timing and Depth**

- Calculation of crop water demand using evapotranspiration (ET), rainfall, and soil-moisture balance.
- Weather forecasts, soil-moisture sensors, and scheduling software to set irrigation events.
- Irrigation depth and frequency to crop growth stage, root-zone depth, and soil water-holding capacity.
- Soil and crop-specific trigger points for irrigation and refill.

#### **Development and Adjustment of Seasonal Schedules**

- Seasonal irrigation calendar using climate data, planting dates, and system limitations.
- Contingencies for extreme weather, water shortages, and equipment faults.
- Adaptive management: schedules in real time based on soil-moisture trends, forecasts, and observed crop stress.
- Monitoring data (e.g., sensor readings, rainfall logs) to update irrigation timing and volumes.

#### **Irrigation Cost–Benefit Evaluation**

- Cost-benefit analysis tools to compare irrigation costs against yield outcomes and water productivity.
- Marginal returns calculations from each irrigation event and diminishing returns identification.
- Recommendation of schedule or system adjustments to optimise cost-benefit and resource efficiency.

### Efficiency and Alignment with Codes of Practice

- Efficiency benchmarks from the NZ Piped Irrigation System Performance Assessment Code.
- Irrigation practices to comply with regional water-use regulations.

### Rauemi | Resources

Codes of Practice relevant to this skill standard include but are not limited to:

- Irrigation New Zealand website, <http://irrigationnz.co.nz/>
  - The New Zealand Piped Irrigation Systems Design Code of Practice
  - The New Zealand Piped Irrigation System Performance Assessment Code of Practice
  - The New Zealand Piped Irrigation Systems Design Standards
  - The New Zealand Piped Irrigation Systems Installation Code of Practice
  - The Irrigation New Zealand Guideline for Irrigation Management
  - The Irrigation New Zealand Design Brief Checklist
  - The Irrigation New Zealand Guideline for an Operations and Maintenance Manual.

Legislation relevant to this skill standard includes but is not limited to:

- Site specific water resource consent or water supply agreement, weather data (e.g. NIWA), crop descriptions and soil profile data sheets (e.g. SMap);
- Health and Safety at Work Act 2015;
- Resource Management Act 1991;
- National Policy Statement for Freshwater Management 2014;
- Various Regional Council Land and Water Regulations

and any subsequent amendments or replacements.

### Pārongo Whakaū Kounga | Quality assurance information

|   |  |
|---|--|
| <b>Ngā rōpū whakatau-paerewa   Standard Setting Body</b>                                | Muka Tangata – People Food and Fibre Workforce Development Council |
| <b>Whakaritenga Rārangi Paetae Aromatawai   DASS classification</b>                     | Engineering and Technology > Water Industry > Irrigation           |
| <b>Ko te tohutoro ki ngā Whakaritenga i te Whakamanatanga me te Whakaōritenga   CMR</b> | 0052   |

| <b>Hātepe   Process</b>                              | <b>Putanga   Version</b>                          | <b>Rā whakaputa   Review Date</b> | <b>Rā whakamutunga mō te aromatawai   Last date for assessment</b> |
|--|---|-----------------------------------|--|
| <b>Rēhitatanga   Registration</b>                    | 1   | 18 December 2025                  | N/A  |
| <b>Kōrero whakakapinga   Replacement information</b> | This skill standard replaced unit standard 28935. |                                   |  |
| <b>Rā arotake   Planned review date</b>              | 31 December 2030                                  |                                   |  |

Please contact Muka Tangata at [qualifications@mukatangata.nz](mailto:qualifications@mukatangata.nz) to suggest changes to the content of this skill standard.